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\*Admitted only in Maryland  
•Admitted only in Virginia  
•Practice Limited to  
Federal Agencies

May 8, 2003

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Commissioner for Patents  
Washington, D.C. 20231

Art Unit 2826

Re: U.S. Utility Patent Application  
Appl. No. 09/783,034; Filed: February 15, 2001  
For: **Die-Down Ball Grid Array Package With Die-Attached Heat Spreader and Method for Making the Same**  
Inventors: Khan *et al.*  
Our Ref: 1875.0210000

Sir:

Transmitted herewith for appropriate action are the following documents:

1. PTO Fee Transmittal (Form PTO/SB/17);
2. Fourth Supplemental Information Disclosure Statement;
3. Form PTO-1449 listing cited documents (2 sheets);
4. Copies of documents cited on Form PTO-1449 (AA1-AN1, AR1-AT1, AA2-AI2, AR2-AT2);
5. Return postcard; and
6. Form PTO-2038 Credit Card Payment Form for \$180.00 fee for submission of IDS.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are

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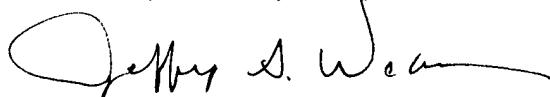
Commissioner for Patents  
May 8, 2003  
Page 2

necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Jeffrey S. Weaver  
Attorney for Applicants  
Registration No. 45,608

JSW/asl  
Enclosures

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#10  
IDS  
1089  
DJS

In re application of:

Khan *et al.*

Appl. No. 09/783,034

Filed: February 15, 2001

For: **Die-Down Ball Grid Array  
Package With Die-Attached Heat  
Spreader and Method for Making  
the Same**

Confirmation No. 5713

Art Unit: 2826

Examiner: L. Andujar

Atty. Docket: 1875.0210000

**Fourth Supplemental Information Disclosure Statement**

Commissioner for Patents  
Washington, D.C. 20231

05/09/2003 HGTENR1 00000001 09783034

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Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application

does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.
  - a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- c. Attached is our PTO-2038 Credit Card Payment Form [OR] Check No. \_\_\_\_\_ in the amount of \$ 180.00 in payment of the fee under 37 C.F.R. § 1.17(p).

□ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

- a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

□ 5. The documents was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the

foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.

6. A concise explanation of the relevance of non-English language documents AL1 and AM1 appears below:

Document AL1 (JP 10-189835) appears to describe a laminated semiconductor package for memory element. A copy of the English language abstract of document AL1 is enclosed as document AR1 on the attached PTO-1449.

Document AM1 (JP 2000-286294) appears to describe a semiconductor device. A copy of the English language abstract of document AM1 is enclosed as document AS1 on the attached PTO-1449.

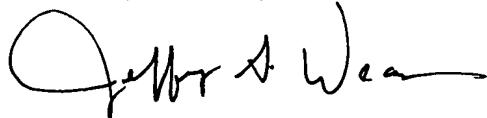
7. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. \_\_\_\_\_, filed \_\_\_\_\_, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Jeffrey S. Weaver  
Attorney for Applicants  
Registration No. 45,608

Date: 5-8-03

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FORM PTO-1449 <b>FOURTH SUPPLEMENTAL INFORMATION</b> <b>DISCLOSURE STATEMENT</b>		ATTY. DOCKET NO. 1875.0210000		APPLICATION NO. 09/783,034			
		APPLICANT Khan <i>et al.</i>					
		FILING DATE February 15, 2001		GROUP 2826			
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1	5,642,261	06/1997	Bond <i>et al.</i>			
	AB1	5,796,170	08/1998	Marcantonio			
	AC1	5,798,909	08/1998	Bhatt <i>et al.</i>			
	AD1	5,843,808	12/1998	Karnezos			
	AE1	5,999,415	12/1999	Hamzehdoost			
	AF1	6,028,358	02/2000	Suzuki			
	AG1	6,057,601	05/2000	Lau <i>et al.</i>			
	AH1	6,122,171	09/2000	Akram <i>et al.</i>			
	AI1	6,242,279 B1	06/2001	Ho <i>et al.</i>			
	AJ1	2002/0053731 A1	--	Chao <i>et al.</i>	257	706	06/15/2001
	AK1	2002/0072214 A1	--	Yuzawa <i>et al.</i>	438	6135	11/13/2001
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL1	10-189835	07/1998	Japan	H01L	23/24	Yes No
	AM1	2000-286294	10/2000	Japan	H01L	21/60	Yes No
	AN1	61-49446	03/1986	Japan	H01L	23/36	Yes No
	AO1						Yes No
	AP1						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AR	1	English-language Abstract of JP 10-189835, published July 21, 1998, 2 pages (last visited March 14, 2003).				
	AS	1	English-language Abstract of JP 2000-286294, published October 13, 2000, 2 pages (last visited March 14, 2003).				
	AT	1	Karnezos, M., "An EPBGA Alternative," <i>Advanced Packaging</i> , June 1998, pages 90, 92, 94, and 96.				
EXAMINER					DATE CONSIDERED		
<b>EXAMINER:</b> Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.							



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Page 2 of 2

FORM PTO-149 PATENT & TRADEMARK OFFICE <u>FOURTH SUPPLEMENTAL INFORMATION</u> <u>DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. 1875.0210000	APPLICATION NO. 09/783,034
		APPLICANT Khan et al.	
		FILING DATE February 15, 2001	GROUP 2826

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA2	2002/0096767 A1	--	Cote et al.	257	738	01/25/2001
	AB2	2002/0098617 A1	--	Lee et al.	438	106	09/18/2001
	AC2	2002/0180040 A1	--	Camenforte et al.	257	738	05/30/2001
	AD2	5,438,216	08/1995	Juskey et al.			
	AE2	5,801,432	09/1998	Rostoker et al.			
	AF2	5,953,589	09/1999	Shim et al.			
	AG2	6,069,407	05/2000	Hamzehdoost			
	AH2	09/849,537	--	Zhang et al.	--	--	05/07/2001
	AI2	10/020,207	--	Khan et al.	--	--	12/18/2001
	AJ2						
	AK2						

**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL2						Yes No
	AM2						Yes No
	AN2						Yes No
	AO2						Yes No
	AP2						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	2	English-language Abstract of JP 61-49446, published March 11, 1986, 1 page.			RECEIVED MAY 12 2003 TECHNOLOGY CENTER 2800
AS	2	Zhao, Z., Ph.D., "Thermal Design and Modeling of Packages," IEEE Short Courses, Broadcom Corporation, October 25, 2000, 95 pages.			
AT	2	Zhao, Z., Ph.D., "IC Package Thermal Issues and Thermal Design," ASAT, Inc., January 14, 2000, 98 pages, presented at 2 <sup>nd</sup> International Icepak User's Group Meeting, Palo Alto, CA, on February 7, 2000.			

EXAMINER	DATE CONSIDERED
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**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.